PROCEEDINGS OF THE

ANATOMICAL SOCIETY OF GREAT BRITAIN AND IRELAND.

AN Ordinary Meeting of the Society was held on Tuesday, November 22, at University College, London, at 5 P.M.—Professor HUMPHRY, F.R.S., President, in the chair. Present—Thirty-three members and visitors.

After the minutes of the last meeting had been read and confirmed, the following gentlemen were elected members of the Society:—John Malet Purser, J. Alfred Scott, Francis Heuston, Professor Redfern, E. H. Bennett, Professor Pye, James Chambers, F. Wardrop Griffith, Campbell Williams, Percy Flemming, Edgar H. Thane, Sinclair Long, and Ambrose Birmingham. The following were then announced for election at the next meeting:—Stanley Boyd, T. E. Little, J. Torrens, and Alfred Banks.

Dr MOTT then read his paper on *The Minute Anatomy of Clarke's Column of the Spinal Cord of Man, the Monkey, and the Dog*, which will be printed *in extenso* in the April number of the *Journal of Anatomy and Physiology*, vol. xxii. (N.S. vol. ii.), and was illustrated by numerous histological specimens and micro-photos of specimens.

Dr ALEX. HILL was surprised at the measurements of the cells of Clarke's column given by Dr Mott, and in speaking of their development, said they appeared after those of the anterior column.

Professor CHARLES STEWART asked what fibres proceeded from the cells which Dr Mott had drawn.

Dr MOTT replied that his method was calculated to show the exact size of the cells, and that they all had fibres.

Professor BERTRAM WINDLE then read a paper on the *Arteries at the Base of the Brain*, which paper is printed *in extenso* in the *Journal of Anatomy and Physiology*, vol. xxii. (N.S. vol. ii.), p. 289.

Mr BLACK spoke of a case in which the internal carotid made a complete spiral before entering the skull.

Professor ALEX. MACALISTER mentioned cases of divided basilar artery, and said the evidence went to show that all median arteries were formed by fusion.

A paper by ROBERT HOWDEN, M.B, on *Variations in the Hippocampus Major and Eminentia Collateralis* was then read. This paper was illustrated by numerous casts of brains, and drawings, and is printed *in extenso* in the *Journal of Anatomy and Physiology*, vol. xxii. (N.S. vol. ii.), p. 283.

Mr ARTHUR THOMSON wished to know whether the casts had been made before or after the brains had been hardened, and spoke of changes in shape which might ensue through the action of spirit.

Sir WILLIAM TURNER, in the absence of Mr Howden, said the moulds were obtained from hardened brains, and by means of plaster of Paris. From these moulds casts were taken with a composition of glycerine and gelatine, thickened with oxide of zinc and a small quantity of arsenious acid.

The following paper, by DAVID HEPBURN, M.B., was then read :—

A Needle in the Spinal Canal transfixing the Roots of Spinal Nerves. DAVID HEPBURN, M.B., M.R.C.S. (Eng.), Senior Demonstrator of Anatomy, University of Edinburgh.

That the tissues of the living body are to a remarkable degree tolerant of pure metals is a fact, in confirmation of which numerous illustrations can be adduced. Thus it is well known that bullets which have lodged in different parts of the human body have lain dormant for long periods without causing special annoyance to, or making their presence felt by, their possessors. Furthermore, needles which have entered the body either remain stationary, or, aided by muscular action, travel long distances from their original point of entrance, or find their way to a free surface, and so perhaps come within the reach of removal.

The late Sir James Young Simpson based his method of deligation of arteries by means of acupressure on the tolerance above referred to. As the result of his study of this subject, he formulated a theory called the "Law of Tolerance of Living Structures for the presence of Foreign Metallic Bodies." In support of this law he makes the following statement :—

"Metallic bodies when lodged and embedded without much mechanical contusion or injury in living tissues produce comparatively little or no irritation by their presence; and if inflammation is excited by their contact, that inflammation is usually limited to the first or adhesive stage, unless the contact at any point or points is so excessive as to produce ulceration by the mere effect of morbid pressure" (*Acupressure*, p. 457, 1864).

A curious specimen which serves still further to illustrate this tolerance, came under my notice in the Practical Anatomy Rooms of the University of Edinburgh. From the circumstances of the case it was not possible to obtain any clinical history. The subject was a female.

In the course of the dissection of the back, and as the laminæ

were being sawn through preparatory to opening the spinal canal, a piece of steel of the thickness of a sacking needle was discovered piercing the right ligamentum subflavum between the laminæ of the fourth and fifth lumbar vertebræ close to their articular processes. It did not project external to the laminæ, but, on opening the spinal canal, it was found to pierce first the trunk of a spinal nerve and then to pass through the opening in the dura mater which gave exit to this nerve.

The spinal cord and its membranes were next carefully removed from the spinal canal, and an incision made through the dura mater along its posterior aspect. This revealed the fact that the piece of metal was an inch in length, pointed and sharp at its inner end.

In its course through the *cauda equina* a number of nerve roots had been involved, some being impaled, while others were matted together by lymph of sufficient age to be firm and dense. Careful examination showed that altogether six anterior and two posterior nerve roots were so affected. These were the anterior roots of the 4th and 5th lumbar, and of the 1st, 2nd, 3rd, and 4th sacral nerves; the posterior root of the 1st lumbar (in part), and the 3rd lumbar nerve.

That part of the needle which passed amidst the nerve fibres was ensheathed in lymph, but the sharp end, half an inch in length, was free. The needle was blackened but not rusted.

The muscles of the limb supplied by the above nerves did not present any signs of atrophy when compared with those of the opposite limb.

In reply to Dr MOTT, Sir WILLIAM TURNER said no degeneration had been observed in the spinal cord.

Professor STRUTHERS gave an account of his methods of preparing and preserving the brain, museum specimens, and dissections.

1. (*a*) *The Brain.—First Stage*, the usual process by immersion in spirit, the membranes having been removed at once in water. This may take from ten to fourteen days according to the strength of the spirit, and the frequency with which it is changed. It should not be carried too far, so as to avoid too much hardening.—*Second Stage*, let the brain lie out for a day to allow the spirit to evaporate. Then place it in the following mixture of glycerine and carbolic acid,—clear glycerine 4 parts, clear carbolic acid 1 part. He had lately used the proportion of 8 of glycerine to 1 of carbolic acid. Two or three days in this fluid will suffice. Take the brain out and allow the glycerine to drip off until only a moist state remains. The brain may now be placed under a glass shade to keep off dust. When thus prepared the convolutions are tough, flexible, and elastic, so that they may be separated down to the bottom of the sulci. The lobes and particular convolutions may then be stained with various pigments applied with a brush. To show simply the lobes, his method is to stain the temporal and parietal lobes, leaving the frontal and occipital lobes uncoloured; and in separated hemispheres to stain

of a different colour also the circumcallosal gyrus. The above method enabled the brain to be handled freely, to lie out for demonstration simply under a glass shade, or to be mounted in jars, without fluid, for the museum shelves. He had many years ago applied this process to all his series of brains, human and comparative, prepared by the old spirit process, and found it a great facility and convenience. It may be applied to brains that have been any length of time in museums in spirit. He did not think Giacomini's method (see this *Journal*, vol. xiii., 1879, p. 282) so good, unless it is wished to have the brain of almost stony hardness, like a plaster cast, not admitting of the convolutions being opened out. That was the result of Giacomini's zinc stage. He showed two brains of the sheep and two human hemispheres, prepared carefully at the same time by the two processes, as an experiment for comparison. Those by Giacomini's process were not only too much hardened, but had shrunk very much in size.

(*b*) *Moist Method for Museum Specimens.*—Inject with spirit, to which some glycerine and carbolic acid have been added, if the part admits of injection; but injection is not necessary. Saturate with the glycerine and carbolic acid mixture. But undiluted glycerine will harden too much. The proportion is glycerine 2 to 1 of water, and to 8 parts of this fluid add 1 part of carbolic acid. When glycerine is used to soften, as during dissection, the proportion should be glycerine and water equal parts. It is not necessary to immerse the part in the fluid, it may be sponged on it or otherwise applied so as to saturate. Immersion may harden too much. Then allow to drip, till only the moist condition remains. Thus prepared, the viscus or dissection is mounted in a museum jar without any fluid, simply in the moist condition and no longer dropping. It may be variously suspended within the jar, as by being fixed to a plate of glass or to a surrounding galvanised iron wire. The glass top may be cemented, or may be applied loose, retained by Goodsir's bronze ring. The advantages of this method, over that by having the jar filled with spirit, are that there is no optical distortion, that it is more economical in the end, and, if the loose cover and bronze ring are employed, that it may be conveniently taken out at any time for closer examination or demonstration. Preparations of the bladder, prostate, uterus, heart, brain (prepared specially as above), the joints, &c., and dissections of the hand, foot, &c., may be conveniently mounted thus and placed on the museum shelves. The method may be employed equally for pathological specimens.

(*c*) *Moist Method for Dissections.*—Larger dissections, as of the ligaments, muscles, blood-vessels, nerves, viscera, &c., are prepared in the above method (*b*), and are useful in teaching in addition to the recent dissections. They do not dry like spirit preparations, and may lie out in the dissecting-room or museum simply under a glass shade to keep off dust. This method may mostly supersede the spirit-basins at present fashionable in some dissecting-rooms, and by changing them from time to time, according to the stage of the

anatomical course, a great many more views may be exposed than by the basin method. Other antiseptics may be used instead of the carbolic acid, but the latter seemed to him as yet to prove the best. He was not sure, however, but that the brown colour of the dissections, after exposure to light, was greater with carbolic acid. Spirit preparations and glycerine preparations should not be placed in the same receptacle, or the spirit preparation will become mummified. To change all the dissections of the school from spirit to glycerine is attended by considerable expense, but it is economical in the end. He had managed during two autumns to overtake the whole, after being satisfied of the advantages. It would not be easy to express the improvement these changes had enabled him to effect in conducting the anatomical school. He had had the pleasure of showing the processes to various anatomical friends, and he had given this account of them to this Society in the hope that they may be tried and found useful in other anatomical schools.

Dr Struthers also showed specimens of the following :—

2. (*a*) *Rider's bone.* Reference was made to two cases of this rare condition, viz., Mr Birkett's case (*Guy's Hosp. Reports*, 1868) and Mr Bryant's case (*Practice of Surgery*, vol. ii., 1876), in both of which the condition appeared to have had its origin in some rupture in the region of the adductor muscles during violent action on horseback. For this preparation he was indebted to his former pupil, Dr James Allan of Leeds. The dissection and notes are by Dr Allan, who had kindly consented to his bringing the preparation and case before the Society on account of the rarity of the condition. It was from a man aged 55. The bone of each side is about $1\frac{1}{2}$ inch in length, $\frac{3}{4}$ to 1 inch thick, and mostly triangular. Right bone articulated to a projecting platform at the angle of the pubes, by a diarthrodial joint with very irregular surface. This bone was felt to be movable from side to side during life. Left bone immovably attached to the pubes. The muscular attachments are still seen on the left side. Adductor longus tendon directly prolonged from the end of the bone, which is flattened towards the tendon; attached to inner surface, on to the point, the fascia lata; to inner posterior border, fore part of gracilis; to outer side, inner part of pectineus; behind, a large part of adductor brevis. All these muscular attachments are of full size. But, curiously, in regard to the origin of the ossification in this case, the man would seem not to have been a rider. Dr Allan mentions that "he had been a foot soldier for twenty-one years, but I have no note of his having been much on horseback in any capacity."

(*b*) Series of specimens of permanently separate Acromion Process, simulating fracture.

(*c*) Series of preparations of the variety in which the right Subclavian Artery arises last from the arch of the aorta.

An account of these specimens will be published separately.

Professor THANE exhibited the thoracic viscera in a case of *Situs Inversus*. The subject was a male, and the transposition affected all the organs of the thorax and abdomen. As in the cases recorded by M. Weber, H. Lebonoff, and C. Aeby, there was an eparterial bronchus on the left side, but not on the right. The lungs were, however, remarkably symmetrical in their external conformation. The left lung was divided into three lobes, which were supplied by the primary branches of the bronchus in a manner precisely agreeing with the normal arrangement on the right side. The cardiac bronchus of Aeby descended from the left bronchial stem to the inner part of the lower lobe. The right lung was also divided into three lobes, in appearance like those of the left lung; but both the upper lobe and the small middle lobe were supplied by the first ventral hyparterial branch of the right bronchus. The aorta arched over the root of the right lung, and gave off its large branches in the following order, viz., left innominate, right common carotid, and right subclavian. The superior vena cava descended on the left side. and the large azygos vein passed forwards to it above the root of the left lung.

Mr ARTHUR THOMSON also showed a plan of mounting frozen sections, and Professor MACALISTER exhibited various skulls.

It was announced that the next meeting would be held at King's College in February.